AGENDA
IRVINE RANCH WATER DISTRICT
ENGINEERING AND OPERATIONS COMMITTEE MEETING
TUESDAY, JANUARY 17, 2023

This meeting will be held in-person at the District's headquarters located at 15600 Sand Canyon Avenue, Irvine, California. The meeting will also be broadcasted via Webex for those wanting to observe the meeting virtually.

To observe this meeting virtually, please join online using the link and information below:

Via Web: https://irwd.webex.com/irwd/j.php?MTID=m7eeea55fc4330092bfc5d21c4d62fe0b
Meeting Number (Access Code): 2483 578 3223
Meeting Password: ziJ8V298ZQM (94588298 from video systems)

PLEASE NOTE: Webex observers of the meeting will be placed into the Webex lobby when the Board enters closed session. Participants who remain in the "lobby" will automatically be returned to the open session of the Board once the closed session has concluded. Observers joining the meeting while the Board is in closed session will receive a notice that the meeting has been locked. They will be able to observe the meeting once the closed session has concluded.

CALL TO ORDER 1:30 p.m.

ATTENDANCE
Committee Chair: Doug Reinhart _____
Committee Member: Karen McLaughlin _____

ALSO PRESENT

Paul Cook	_____	Kevin Burton	_____	Wendy Chambers	_____
Jose Zepeda	_____	Paul Weghorst	_____	Cheryl Clary	_____
Steve Choi	_____	Jim Colston	_____	Fiona Sanchez	_____
Rich Mori	_____	Eric Akiyoshi	_____	Joseph McGhee	_____
Jacob Moeder	_____	Malcolm Cortez	_____	Ken Pfister	_____
Harry Cho	_____	Alex Murphy	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

PUBLIC COMMENT NOTICE

If you wish to address the Committee on any item, please submit a request to speak via the "chat" feature available when joining the meeting virtually. Remarks are limited to three minutes per speaker on each subject. Public comments are limited to three minutes per speaker on each subject. You may also submit a public comment in advance of the meeting by emailing comments@irwd.com before 9:00 a.m. on Tuesday, January 17, 2023.

COMMUNICATIONS

1. Notes: Burton
2. Public Comments
3. Determine the need to discuss and/or take action on item(s) introduced that came to the attention of the District subsequent to the agenda being posted, and determine which items may be approved without discussion.

INFORMATION

4. REPLACEMENT PLANNING MODEL TREATMENT PLANT UPDATE – ROBINSON / AKIYOSHI / BURTON

   Recommendation: That the Committee receive and file the results from the Replacement Planning Model Treatment Plant Update.

5. RESEARCH BUSINESS PLAN UPDATE – COLSTON / BURTON

   Recommendation: Receive and file.

6. UPDATE ON SYPHON RESERVOIR IMPROVEMENT PROJECT MITIGATION AND LONG-TERM FUNDING – SANCHEZ / JACOBSON / WEGHORST

   Recommendation: Receive and file.

OTHER BUSINESS

7. Directors' Comments

8. Closed Sessions

   A. CONFERENCE WITH REAL PROPERTY NEGOTIATORS- Pursuant to Government Code Section 54956.8:

   Property: Assessor's Parcel Numbers 105-361-07 & 09, County of Orange
   Agency negotiator: Rob Jacobson, Treasurer/Director of Risk Management, and Claire Collins, General Counsel

OTHER BUSINESS (Continued)

Closed Sessions, Continued

Negotiating parties: Tran Land Company, a General Partnership;
David S. Belna, Trustee of the David S. Belna Trust dated May 28, 1998;
David Belna, Successor Trustee of the Belna Family Trust dated May 16, 1986;
Paul F. Belna, Trustee of the Paul F. Belna Trust dated September 12, 1996;
Steven Belna, Trustee of the Steven Belna Trust dated April 27, 2001
Thomas H. Hale and Mary C. Hale as Trustees of the Hale Family Revocable Trust – 2011;
Jill Richmond, Trustee of the Richmond Family Trust dated April 16, 1980; and
Robert L. Wilkes, Trustee of the Wilkes Family Trust dated July 11, 1989
Under negotiation: Price and Terms of Payment

B. CONFERENCE WITH REAL PROPERTY NEGOTIATORS- Pursuant to Government Code Section 54956.8:

Property: Assessor's Parcel Numbers 445-072-16, County of Orange
Agency negotiator: Rob Jacobson, Treasurer/Director of Risk Management, and Fiona Sanchez, Director of Water Resources
Negotiating parties: The Irvine Company
Under negotiation: Price and Terms of Payment

C. CONFERENCE WITH LEGAL COUNSEL—ANTICIPATED LITIGATION- Pursuant to Government Code Section 54956.9(d)(4): *Initiation of litigation.* (One (1) potential case)

9. Open Sessions

10. Adjournment

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Availability of agenda materials: Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the above-named Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Committee Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available electronically via the Webex meeting noted. Upon request, the District will provide for written agenda materials in appropriate alternative formats, and reasonable disability-related modification or accommodation to enable individuals with disabilities to participate in and provide comments at public meetings. Please submit a request, including your name, phone number and/or email address, and a description of the modification, accommodation, or alternative format requested at least two days before the meeting. Requests should be emailed to comments@irwd.com. Requests made by mail must be received at least two days before the meeting. Requests will be granted whenever possible and resolved in favor of accessibility.

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January 17, 2023
Prepared by: M. Robinson / E. Akiyoshi
Submitted by: K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

REPLACEMENT PLANNING MODEL TREATMENT PLANT UPDATE

SUMMARY:

IRWD uses various planning tools, such as its Replacement Planning Model (RPM) and Replacement Fund Balance Model, to assist in the long-term financial and capital asset planning for over 3,700 miles of pipelines, significant treatment plants, and a multitude of other facilities. The RPM Treatment Plant project updates replacement costs and replacement and rehabilitation (R&R) frequencies for treatment plants. This updated approach increased the escalated 50-year replacement funding needs by $1.3 billion: from $9.2 billion to $10.5 billion. At the Committee meeting, staff will present its analysis and the results.

BACKGROUND:

Over the past five years, IRWD has completed several major updates to the RPM and currently uses Kayuga Solution's Infrastructure Reinvestment Intelligence System (IRIS) software package as the analysis platform. Most recently, HDR was retained to complete the last major component: update treatment plant replacements costs and R&R frequencies.

The following table summarizes the present value of the replacement cost changes for each treatment plant:

Treatment Plant	2022 Replacement ($ in millions)	2020 Replacement ($ in millions)
Baker Water Treatment Plant	$139	$100
Biosolids and Energy Recovery Facility	$313	$200
Deep Aquifer Treatment System	$31	$20
IDP Potable Treatment Plant	$23	$20
IDP Principal Aquifer Plant	$12	$3
IDP Shallow Groundwater Unit	$7	$3
Los Alisos Water Recycling Plant	$214	$70
Manning Water Treatment Plant	$7	$0
Michelson Water Recycling Plant	$515	$209
Wells 21 & 22 Desalter	$29	$40
Total	*$1,290*	*$665*

The replacement cost changes result in an increase to IRWD's 50-year overall replacement needs by $1.3 billion: from $9.2 billion in 2020 to 10.5 billion in 2022. At the Committee meeting, staff will provide more detail on the analysis and results.

FISCAL IMPACTS:

The updated RPM projections will be incorporated into the financial Replacement Fund Balance Model and the updated Replacement Funding Strategy will be presented to the Finance and Personnel Committee in February 2023.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

That the Committee receive and file the results from the Replacement Planning Model Treatment Plant Update.

LIST OF EXHIBITS:

Exhibit “A” – RPM Treatment Plant Update Presentation

REPLACEMENT PLANNING MODEL TREATMENT PLANT UPDATE

Irvine Ranch Water District

ENGINEERING AND OPERATIONS COMMITTEE
JANUARY 17, 2023

Irvine Ranch Water District

1

AGENDA

- Review Treatment Plant Updates
  - Methodology
  - Results
- RPM / IRIS Update
  - Results
  - Changes

RPM: Replacement Planning Model
IRIS: Infrastructure Reinvestment Intelligence System

Irvine Ranch Water District

2

2

RPM UPDATES OVERVIEW

Linear and Vertical Asset Updates (November 2020)

- Completed major RPM update to all pipelines, pump stations, wells, tanks, and lift stations. The total RPM escalated at 3% over 50 years = $9.2 billion

Sewage Treatment Master Plan

- Completed Sewage Treatment Master Plan and updated replacement cost of LAWRP from $70M to $214M

2022 Treatment Plants Update

- Updated treatment plant replacement costs, refurbishment and replacement frequencies, and all associated process unit costs

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3

3

RPM TREATMENT PLANT UPDATE GOALS

- Treatment Plant Update
  - Update total treatment plant replacement costs
  - Update treatment process unit costs
  - Update refurbishment and replacement frequencies and costs
- RPM Update
  - Develop new long-term financial replacement needs in IRWD's Infrastructure Reinvestment Intelligence System (IRIS): RPM model
  - Provide information for updating IRWD's Replacement Funding Policy

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4

4

UPDATING TREATMENT PLANT COSTS AND REPLACEMENT AND REFURBISHMENT FREQUENCIES

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5

5

TREATMENT PLANT COSTS UPDATE METHODOLOGY

- Optimize Cost Categories
  - Process categories and hierarchy were refined to allow for better cost delineation of process areas, site construction, and support functions
- Develop Treatment Process Unit Costs
  - HDR's costSPACE, a parametric cost estimation tool
  - Vendor quotes combined with estimates for installation and support facilities
  - Historical project cost data from similar facilities
  - Historical project cost data from recent IRWD facility projects (MWRP Biosolids)
  - Technical review from experienced cost estimating and treatment experts
- Validate Against Current Market Conditions

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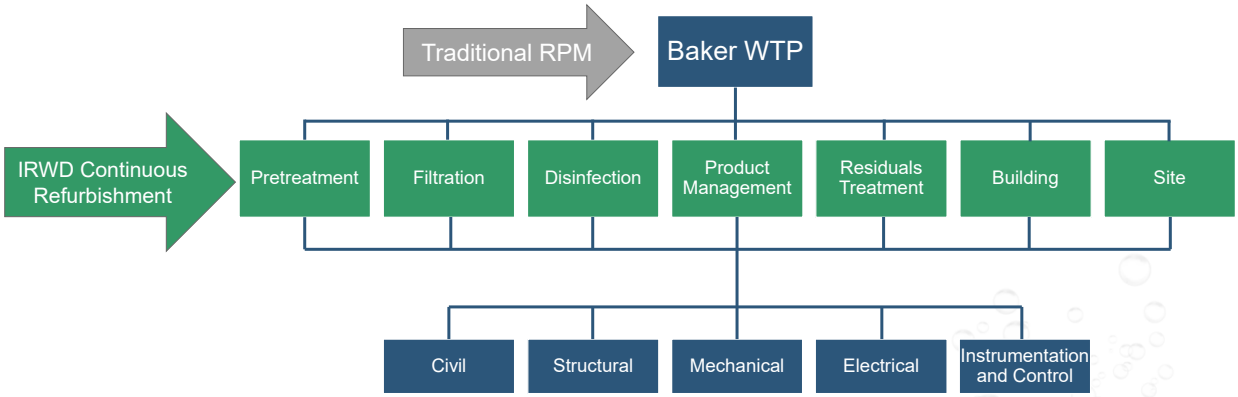
6

6

IRWD CONTINUOUS REFURBISHMENT RPM STRATEGY



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7

7

DEVELOPED REPLACEMENT AND REFURBISHMENT FREQUENCIES FOR PROCESS CATEGORIES

MgmtStgyID	Facility Type	Asset Category	MgmtAreaType	Strategy 1	S1 Freq	S1 Percent of Total Value	Strategy 2	S2 Freq	S2 Percent of Total Value	Strategy 3	S3 Freq	S3 Percent of Total Value	Strategy 4	S4 Freq	S4 Percent of Total Value
Civil-TP	Both	Civil	General	Replace buried elements (manholes, vaults,etc.)	100	25%	Replace aboveground elements (i.e. pavement, sidewalks, etc.)	75	40%	Seal pavement and repair sidewalks	25	15%	Rehab buried elements (manholes, vaults,etc.)	50	20%
Electrical Building-TP	Both	Electrical	Building	Replace electrical	75	80%	Replace lighting	25	20%						
Electrical Process-TP	Both	Electrical	Process	Replace motors	30	40%	Replace Switchgears/MCC;	30	60%						
Electrical Site-TP	Both	Electrical	Site	Replace electrical	80	20%	Replace lighting	20	10%	Replace generator	20	20%	Replace site conductors	40	50%
Instrumentation and Controls-TP	Both	I&C	General	Replace SCADA hardware, SCADA	20	70%	Replace major instruments	10	30%						
Mechanical Site-TP	Both	Mechanical	Site	Replace yard piping	50	65%	Replace equipment	30	25%	Replace chemical	15	10%			
Mechanical Subordinate System-TP	Both	Mechanical	Subordinate System	Replace equipment	20	50%	Replace valves and piping	20	50%						
Mechanical Process Buildings-TP	Both	Mechanical	Process Buildings	Replace equipment	20	80%	Replace valves and piping	30	20%						
Mechanical Support Buildings-TP	Both	Mechanical	Support Buildings	Replace equipment	20	50%	Replace valves and piping	30	50%						
Mechanical Preliminary-TP	WRP	Mechanical	Preliminary	Replace equipment	20	80%	Replace valves and piping	20	20%						
Mechanical Primary-TP	WRP	Mechanical	Primary	Replace equipment	30	60%	Replace valves and piping	25	40%						
Mechanical Secondary-TP	WRP	Mechanical	Secondary	Replace equipment	25	70%	Replace valves and piping	30	30%						
Mechanical Tertiary-TP	WRP	Mechanical	Tertiary	Replace equipment	30	70%	Replace valves and piping	30	30%						
Mechanical Disinfection-TP	Both	Mechanical	Disinfection	Replace equipment	20	70%	Replace valves and piping	30	30%						
Mechanical Effluent Mgmt-TP	WRP	Mechanical	Effluent Mgmt	Replace equipment	30	70%	Replace valves and piping	30	30%						
Mechanical Solids-TP	WRP	Mechanical	Solids	Replace equipment	20	80%	Replace valves and piping	25	20%						
Mechanical Pretreatment-TP	WTP	Mechanical	Pretreatment	Replace equipment	20	60%	Replace valves and piping	30	40%						
Mechanical Filtration-TP	WTP	Mechanical	Filtration	Replace equipment	30	70%	Replace valves and piping	30	30%						
Mechanical Product Mgmt-TP	WTP	Mechanical	Product Mgmt	Replace equipment	30	60%	Replace valves and piping	30	40%						
Mechanical Residuals-TP	WTP	Mechanical	Residuals	Replace equipment	20	80%	Replace valves and piping	20	20%						
Structural Site-TP	Both	Structural	Site	Replace structural	75	70%	Replace fencing	25	30%						
Structural Process Buildings-TP	Both	Structural	Process Buildings	Replace structural	75	88%	Rehab roof	25	5%	Rehab structure	25	7%			
Structural Support Buildings-TP	Both	Structural	Support Buildings	Replace structural	75	80%	Rehab roof	25	5%	Rehab interior	25	7%	Rehab exterior	20	8%
Structural Subordinate System-TP	Both	Structural	Subordinate System	Replace concrete	75	75%	Rehab concrete	25	15%	Rehab metals	25	10%			
Structural Preliminary_Primary-TP	WRP	Structural	Preliminary_Primary	Replace concrete	50	75%	Rehab concrete	10	15%	Rehab metals	10	10%			
Structural Secondary_Tertiary-TP	WRP	Structural	Secondary_Tertiary	Replace concrete	75	70%	Rehab concrete	25	20%	Rehab metals	20	10%			
Structural Disinfection_Effluent Mgmt-TP	WRP	Structural	Disinfection_Effluent Mgmt	Replace concrete	75	75%	Rehab concrete	25	20%	Rehab metals	15	5%			
Structural Solids-TP	WRP	Structural	Solids	Replace concrete	60	75%	Rehab concrete	20	15%	Rehab metals	10	10%			
Structural Pretreatment-TP	WTP	Structural	Pretreatment	Replace concrete	75	75%	Rehab concrete	25	15%	Rehab metals	25	10%			
Structural Process-TP	WTP	Structural	Process	Replace concrete	75	75%	Rehab concrete	25	15%	Rehab metals	25	10%			

Irvine Ranch Water District

8

8

REPLACEMENT AND REFURBISHMENT FREQUENCY BAKER WTP EXAMPLE

- Validated Discipline and Process level unit costs against total plant replacement costs
- Baker WTP used as an example

Level 2	Baker Water Treatment Plant		
Sum of Total Capital Cost			
Level 5	MgmtStgyID	Level 3	Total
Civil	Civil-TP	Pretreatment	$628,593
		Filtration	$125,730
		Disinfection	$411,533
		Product Management	$67,236
		Residuals Treatment	$948,921
		Site	$6,597,144
Electrical	Electrical Process-TP	Pretreatment	$1,344,799
		Filtration	$3,101,748
		Disinfection	$1,967,970
		Product Management	$1,029,916
		Residuals Treatment	$2,434,370
	Electrical Building-TP	Building	$3,567,070
	Electrical Site-TP	Site	$6,808,268
Instrumentation	Instrumentation and Controls-TP	Pretreatment	$1,270,529
		Filtration	$1,322,585
		Disinfection	$2,136,368
		Product Management	$714,089
		Residuals Treatment	$1,685,954
Mechanical	Mechanical Pretreatment-TP	Pretreatment	$4,627,525
	Mechanical Filtration-TP	Filtration	$20,630,229
	Mechanical Disinfection-TP	Disinfection	$9,592,199
	Mechanical Product Mgmt-TP	Product Management	$9,058,968
	Mechanical Residuals-TP	Residuals Treatment	$7,119,296
	Mechanical Process Buildings-TP	Building	$3,128,770
	Mechanical Support Buildings-TP	Building	$438,300
	Mechanical Site-TP	Site	$2,179,033
Structural	Structural Pretreatment-TP	Pretreatment	$2,264,098
	Structural Process-TP	Filtration	$392,907
		Product Management	$869,069
		Residuals Treatment	$3,063,268
	Structural Disinfection_Effluent Mgmt-TP	Disinfection	$3,917,903
	Structural Process Buildings-TP	Building	$25,030,160
	Structural Support Buildings-TP	Building	$3,506,400
	Structural Site-TP	Site	$7,232,453
Grand Total			$139,213,401

Irvine Ranch Water District

9

9

TREATMENT PLANTS REPLACEMENT COST SUMMARY

Process Category	Civil	Structural	Mechanical	Electrical	I&C	TOTAL
Michelson Water Recycling Plant	$48 M	$184 M	$173 M	$81 M	$29 M	$515 M
Biosolids and Energy Recovery	$35 M	$107 M	$94 M	$63 M	$14 M	$313 M
Baker Water Treatment Plant	$9 M	$46 M	$57 M	$20 M	$7 M	$139 M
Deep Aquifer Treatment System	$1 M	$6 M	$19 M	$4 M	$1 M	$31 M
Wells 21 & 22 Desalter	$1 M	$7 M	$16 M	$4 M	$1 M	$29 M
IDP Potable Treatment Plant	$1 M	$6 M	$12 M	$3 M	$1 M	$23 M
IDP Principal Aquifer Plant	$0.9 M	$2 M	$5 M	$2 M	$2 M	$12 M
IDP Shallow Groundwater Unit	$0.3 M	$1 M	$4 M	$1 M	$1 M	$7 M
Los Alisos Water Recycling Plant[1]	$4 M	$56 M	$73 M	$59 M	$22 M	$214 M
Manning Water Treatment Plant	$1 M	$1 M	$3 M	$1 M	$0.5 M	$7 M
					Total Capital Cost	**$1,290 M**

[1] LAWRP was approved in the Capital Program for $214 M

Irvine Ranch Water District

10

10

REPLACEMENT PLANNING MODEL TREATMENT PLANT UPDATE

Irvine Ranch Water District

11

11

TREATMENT PLANT REPLACEMENT COST CHANGES

Treatment Plant	2022 Replacement Value	2020 Replacement Value	Delta
Baker Water Treatment Plant	$139 M	$100 M	$39 M
Biosolids and Energy Recovery Facility	$313 M	$200 M	$113 M
Deep Aquifer Treatment System	$31 M	$20 M	$11 M
IDP Potable Treatment Plant	$23 M	$20 M	$3 M
IDP Principal Aquifer Plant	$12 M	$3 M	$9 M
IDP Shallow Groundwater Unit	$7 M	$3 M	$4 M
Los Alisos Water Recycling Plant	$214 M	$70 M	$144 M
Manning Water Treatment Plant	$7 M	$0.4 M	$6 M
Michelson Water Recycling Plant	$515 M	$209 M	$306 M
Wells 21 & 22 Desalter	$29 M	$40 M	($11 M)
Total	**$1,290 M**	**$665 M**	**$625 M**

Irvine Ranch Water District

12

12

TREATMENT PLANT UPDATE COMPARISON

Treatment Plant Update Version	Treatment Plant Replacement Value	Treatment Plant 50 Year R&R Escalated	Total RPM 50 Year R&R Escalated
2020 RPM Phase 2 Update	$0.7 B	$2.0 B	$9.2 B
2022 Treatment Plant Update	$1.3 B	$3.3 B	$10.5 B

Irvine Ranch Water District

13

13

ONGOING RPM MAINTENANCE

- Update RPM as new major facilities are added
- Update RPM as facilities are refurbished and replaced
- Update RPM as market conditions and construction costs dictate
- Coordinate with finance on the replacement funding policy

Irvine Ranch Water District

14

14

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January 17, 2023
Prepared by: J. Colston
Submitted by: J. Colston / K. Burton
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

RESEARCH BUSINESS PLAN UPDATE

SUMMARY:

Staff will provide an update on the research projects in which IRWD is currently involved.

BACKGROUND:

Periodically IRWD receives requests to participate in various research projects pertaining to emerging technologies through either direct funding or dedication of in-kind staff resources. Guidelines were developed to assist staff with its evaluation and response to those requests. These guidelines were incorporated into the IRWD Research Business Plan, which also provides a tracking mechanism for the various requests and ongoing research projects and programs in which IRWD participates. The underlying purpose of the Research Business Plan is to ensure that IRWD's research resources are being prioritized and utilized effectively.

One of the components of the Research Business Plan is for staff to provide a status update on the research projects to the Engineering and Operations Committee on a quarterly basis. IRWD actively participates in the Technology Approval Group (TAG) sponsored by Isle Utilities. The TAG hosts numerous developing technology providers in order to match interested agencies with their technologies. A status update on the current research projects is attached as Exhibit "A".

Changes since the last quarterly report:

- Update: UCI Industry-University Research Center-Perfluorinated Compound Sources and Loading at Wastewater Treatment Plants-A Sewershed-Scale Analysis – Sampling was delayed due to sewer access challenges for UCI. Sampling now scheduled to be complete in the first half of 2023. Identification of residential sources of per- and poly-fluoroalkyl substances (PFAS) will commence immediately upon the end of the sampling.
- Update: Biosolids Pellets Land Application Crop Study – Study has progressed to the second application of biosolids to the winter application of biosolids to fruit bearing trees in January 2023. Researchers have requested an additional 175 lbs. of pellets for this application.

FISCAL IMPACTS:

Not applicable.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit “A” – Research Projects Summary Table

Exhibit "A"

Research Projects Summary Table

No.	Project Title	Project Description	IRWD Contact	Organizations Involved	Type of Research	IRWD Participation Resource	Start Date	Projected Completion Date	Comments/Next Steps
1	UCI Industry-University Research Center-Perfluorinated Compound Sources and Loading at Wastewater Treatment Plants-A Sewershed-Scale Analysis	This project will develop and implement methodology for sewershed analysis to identify raw wastewater sources of PFAS.	Weghorst/ Colston	UCI Industry-University Research Center	Case study, data review, best practice analysis and technical report.	Staff time for review of reports, sharing information, and site analysis. Also providing automated sampling equipment.	Sep-20	Dec-23	Wastewater collection from sub-sewershed locations in Orange County has commenced and is expected to finish by the first half of 2023. Based on data from samples analyzed so far, the mean concentration of PFAS in Orange County residential wastewater is 28.7 – 51.6 ng/L. Studies to identify major sources of PFAS from residences will commence after the sampling is complete.
2	Biosolids Pellets Land Application Crop Study	The primary goal is to determine if ~40-50 of the roughly 400 unregulated organic contaminants listed in the 'EPA contaminants in biosolids database' can be found in, or remain in, the edible portions of food and feed crops following land application at standard agronomic rates based on the nitrogen needs of the test crop.	Zepeda	UC Riverside/South Coast Research and Education Center in Irvine with funding by USEPA	Field study with laboratory analysis of biosolids and crops	Provide Class A biosoilds pellets (approximately 1-2 tons of material)	Apr-22	Jul-23	Phase 1 is ending with the choice of targeted analytes and methods. Phase 2 has begun as approximately 200 lbs. of biosolids pellets were provided to UC Riverside researcher Dr. Nicole Dennis for analysis for the fall vegetable crops, and another 175 lbs. of biosolids will be supplied in January 2023 for winter tree fertilization.

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January 17, 2023
Prepared by: F. Sanchez / R. Jacobson
Submitted by: F. Sanchez / P. Weghorst
Approved by: Paul A. Cook

ENGINEERING AND OPERATIONS COMMITTEE

UPDATE ON SYPHON RESERVOIR IMPROVEMENT PROJECT
MITIGATION AND LONG-TERM FUNDING

SUMMARY:

Irvine Ranch Water District is coordinating with representatives from the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) to develop a mitigation plan for the proposed Syphon Reservoir Improvement Project. At the Committee meeting, staff will provide an update on these coordination efforts, the conceptual mitigation package and associated long-term funding requirements that have been developed to mitigate impacts to sensitive habitat that surrounds Syphon Reservoir. Staff will also provide the status of the discussions with the Irvine Company to acquire mitigation rights important to providing offsite riparian and freshwater marsh mitigation for the project.

BACKGROUND:

The Syphon Reservoir Improvement Project will increase IRWD's seasonal recycled water storage capacity by approximately 4,700 acre-feet (AF). IRWD proposes to increase storage in Syphon Reservoir by replacing the existing 59-foot high dam with a new 136-foot dam. The final useable storage capacity for Syphon Reservoir would be approximately 5,200 AF. A location map of Syphon Reservoir is provided as Exhibit "A".

In July 2022, staff provided the Committee an overview of an initial mitigation package that had been developed to mitigate impacts to habitat that surrounds Syphon Reservoir. Following is an update on coordination efforts with USFWS and CDFW, the resulting conceptual mitigation package and associated long-term funding requirements that has have been developed to mitigate impacts to sensitive habitat that surrounds Syphon Reservoir. Also provided is an overview of discussions with the Irvine Company to acquire mitigation rights important to providing riparian and freshwater marsh mitigation for the project.

Environmental Review:

In January 2020, the IRWD Board certified an Environmental Impact Report (EIR) for the Project that identifies mitigation measures to address impacts of the project. The EIR recognized that when IRWD acquired Syphon Reservoir, the purchase included all the previous mitigation land surrounding the reservoir site that was associated with the development of the Eastern Transportation Corridor by the Transportation Corridor Agencies. The grant deeds for the surrounding property incorporated use restrictions for the previously mitigated areas. Exhibit "B" depicts the Syphon Reservoir area and the surrounding area with various plant communities as identified in the EIR.

Mitigation Requirements:

IRWD and consultants at ESA have been coordinating extensively with representatives from USFWS and CDFW to discuss anticipated Project impacts to jurisdictional areas and habitats as well as associated mitigation requirements. On December 16, 2022, staff and the resource agencies agreed in principle to a conceptual mitigation package for impacted upland and aquatic resource habitats, as well as a proposed plan for long-term maintenance and contingency funding for the mitigation areas.

Upland Habitat Mitigation:

Syphon Reservoir is located within the Orange County Central / Coastal Natural Communities Conservation Plan (NCCP) Reserve. As a participatory member of the NCCP, IRWD has 53 acres of in-reserve coastal sage scrub (CSS) take credits, which can be used to offset impacts to CSS in the Reserve. The upland habitat acreage within the NCCP and previously restored grant deed areas that would be impacted from the proposed project is estimated at 70.65 acres. Staff has informed USFWS and CDFW that IRWD intends to utilize 34 acres of its in-reserve CSS take credits for the Syphon Reservoir Improvement Project. IRWD would retain the remaining 19 acres of credits for future projects located in the NCCP Reserve.

The USFWS and CDFW assessed the environmental value of the impacted vegetation and acreage taking into consideration IRWD's use of 34 acres of in-reserve CSS take credits. The agencies provided an evaluation of the required mitigation utilizing different ratios to compensate for impacts to covered species and sensitive habitat. The agencies' evaluation addressed the need to provide for past restoration efforts and to adequately replace any lost habitat that was previously protected by grant deeds. In the evaluation, USFWS and CDFW determined that project impacts would require 172.73 acres of upland habitat mitigation as shown in Exhibit "C". IRWD's use of 34 acres of in-reserve take credits reduces the mitigation ratio from 4:1 to 2:1. In addition to the use of 34 acres of take credits, the mitigation package would require acquisition of mitigation lands, the restoration of CSS and upland habitat and provisions for establishing funding to support long-term maintenance of these areas.

Aquatic Resource Mitigation:

The Project will also impact approximately 6.2 acres of woody riparian habitat and 5.33 acres of freshwater tule marsh at the existing Syphon Reservoir. These expected impacts and proposed mitigation requirements are also shown in Exhibit "C". USFWS and CDFW have indicated that on-site mitigation is preferable and would receive a more favorable mitigation ratio than off-site restoration. The current on-site proposal would include approximately six acres of new woody riparian habitat that would be developed as part of the Project. This on-site proposal would be acceptable to USFWS and CDFW.

Consultants at ESA developed a conceptual design for the remaining riparian and freshwater marsh mitigation to be provided offsite at IRWD's property located south of Campus Drive, as depicted in Exhibit "D". The USFWS and CDFW have agreed in principle to use the property for the off-site aquatic resource mitigation. More detailed designs are in development.

Irvine Company Mitigation Rights:

When IRWD acquired the San Joaquin Marsh property (including the property south of Campus Drive) from the Irvine Company, the Irvine Company retained all mitigation rights associated with the property. The Irvine Company previously received mitigation credit for a portion of the area known as the Small Area Mitigation Site 1 (SAMS 1) south of Campus Drive. Staff and legal counsel have been in discussions with the Irvine Company to arrange for a transfer of the Irvine Company's mitigation rights to IRWD. Securing access to the mitigation rights is important for providing offsite riparian and freshwater marsh mitigation for the project.

Long-Term Maintenance and Contingency Funding:

USFWS and CDFW will require funding to be obligated for mitigation site establishment, long-term maintenance, and restoration in the event of wildfires. Typically, the agencies expect these obligations to be met in the form of endowments. In coordination with the Irvine Ranch Conservancy and ESA, staff developed preliminary budget requirements and met with the agencies to discuss alternative funding mechanisms for IRWD. At the Committee meeting, staff will provide additional information on long-term funding requirements and alternative funding mechanisms. Staff will also provide an update on the proposed conservation and restoration package for the upland and aquatic resources, land acquisition opportunities, and status of the discussions with the Irvine Company.

FISCAL IMPACTS:

Syphon Reservoir Improvement Project (Project 03808) is included in the FY 2022-23 Capital Budget. Currently, the existing budget and expenditure authorizations are sufficient to fund the mitigation/permitting work. Staff will return to the Committee and Board of Directors to request additional budget for potential land acquisitions related to the proposed mitigation package.

ENVIRONMENTAL COMPLIANCE:

An Environmental Impact Report for the Syphon Reservoir Improvement Project was prepared, certified, and the Project approved in compliance with California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the State CEQA Guidelines in the Code of Regulations Title 14, Division 6, Chapter 3.

RECOMMENDATION:

Receive and file.

LIST OF EXHIBITS:

Exhibit "A" –Location Map: Syphon Reservoir
Exhibit "B" – Syphon Reservoir, Surrounding Property and Plant Communities
Exhibit "C" – USFWS and CDFW Mitigation Estimate
Exhibit "D" – Conceptual Design Off-Site Riparian and Wetland Habitat

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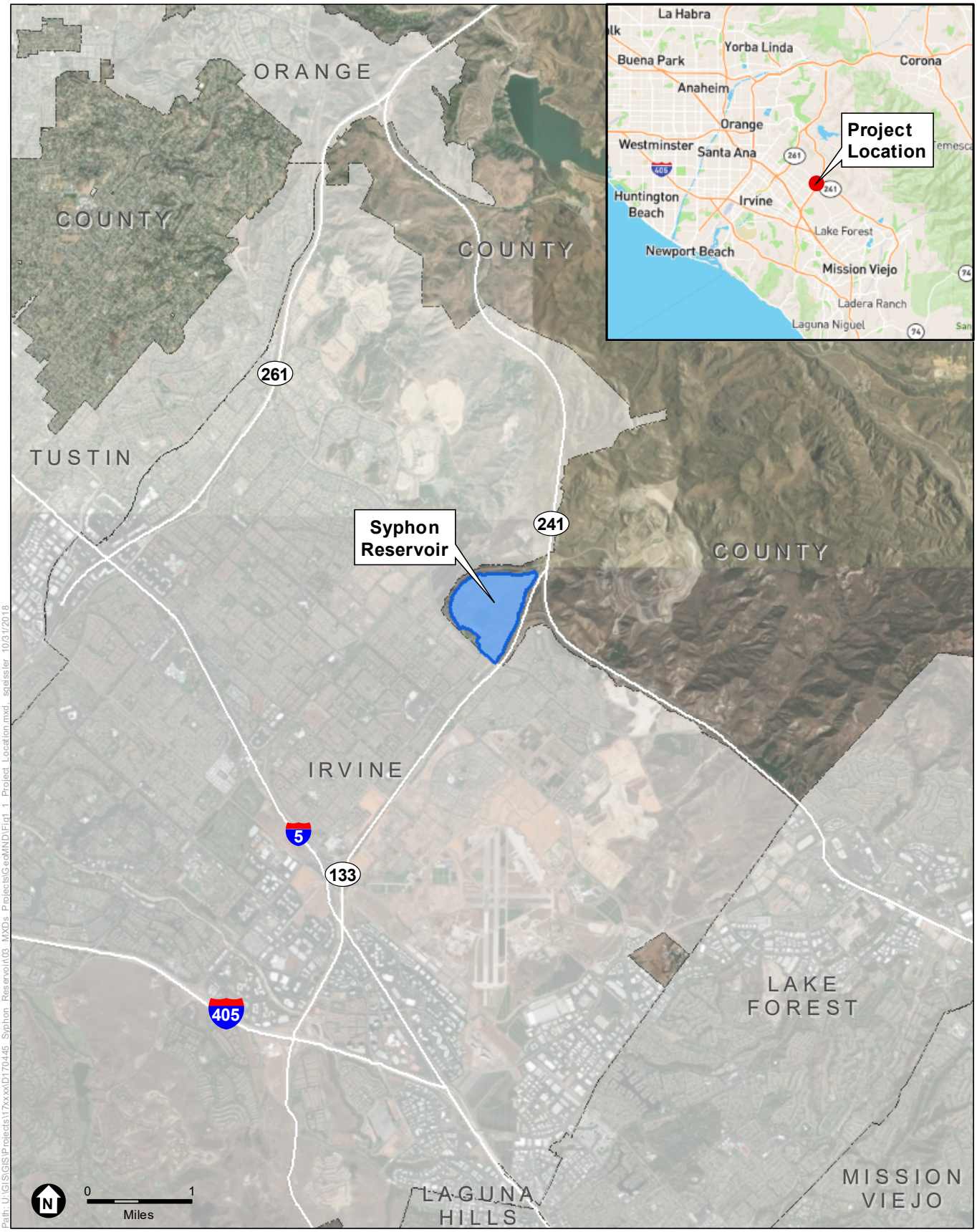
EXHIBIT "A"



SOURCE: ESRI, 2016; OC LAFCO, 2018

IRWD Syphon Reservoir

Figure 1-1
Project Location

ESA

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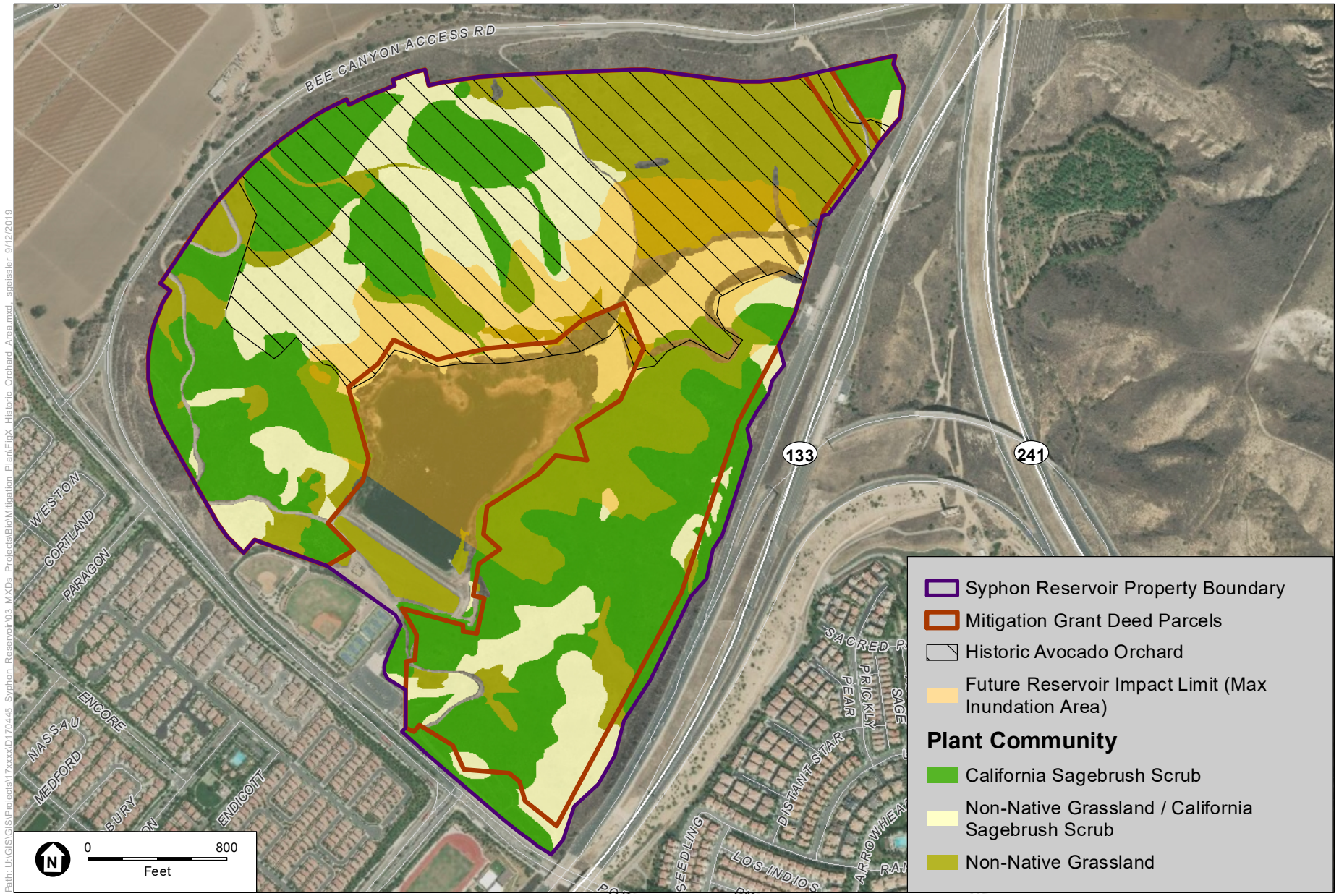
Exhibit "B"
Syphon Reservoir, Surrounding Property and Plant Communities



SOURCE: ESRI, 2016, ESA, 2019.

ESA

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Exhibit "C"

USFWS/CDFW Mitigation Package

Upland Habitat

The following elements represent what has been agreed to in principle by the Resource Agencies after deducting 34.0 take credits from IRWD's allotted CSS credits under the NCCP/HCP Implementing Agreement.

Upland Habitat Impacts

Habitat	Project Impacts (Acres)	Ratio	Mitigation Required (Acres)
CSS (27.51 ac); CSS/AG (0.99 ac)	28.50	**2:1***	57.00
AG/CSS (5.5 ac)	5.50	**2:1***	11.00
AG/CSS (<5% CSS: 20.86)	20.86	4:1	83.44
Sumac Chapparal	1.63	1:1	1.63
Ruderal Grassland	19.66	1.1	19.66
Total	**76.15**		**172.73**

**34 acres of take credits applied*
CSS = Coastal Sage Scrub
AG = Annual Grassland (non-native)

Upland Habitat Proposed On-Site Mitigation

On-Site CSS Mitigation* – 60% Avg Native Cover Standard, all areas	Acres	Credit Ratio	Mitigation Credit (Acres)
CSS Restoration (currently < 5% native cover	59.0	1:1	59.0
CSS Enhancement (currently > 5% native cover)	85.0	0.5:1	42.5
CSS Creation (ruderal to be graded, then planted)	10.0	0.75:1	7.5
Total	**154.0**		**109.0**

The remaining upland mitigation (equivalent to 63.73 acres) will be provided by off-site property acquisition.

Riparian and Wetland Habitat

Riparian and Wetland Habitat Impacts

Habitat	Project Impacts (Acres)
Woody Riparian	6.20
Tule Marsh	5.33
Total	**11.53**

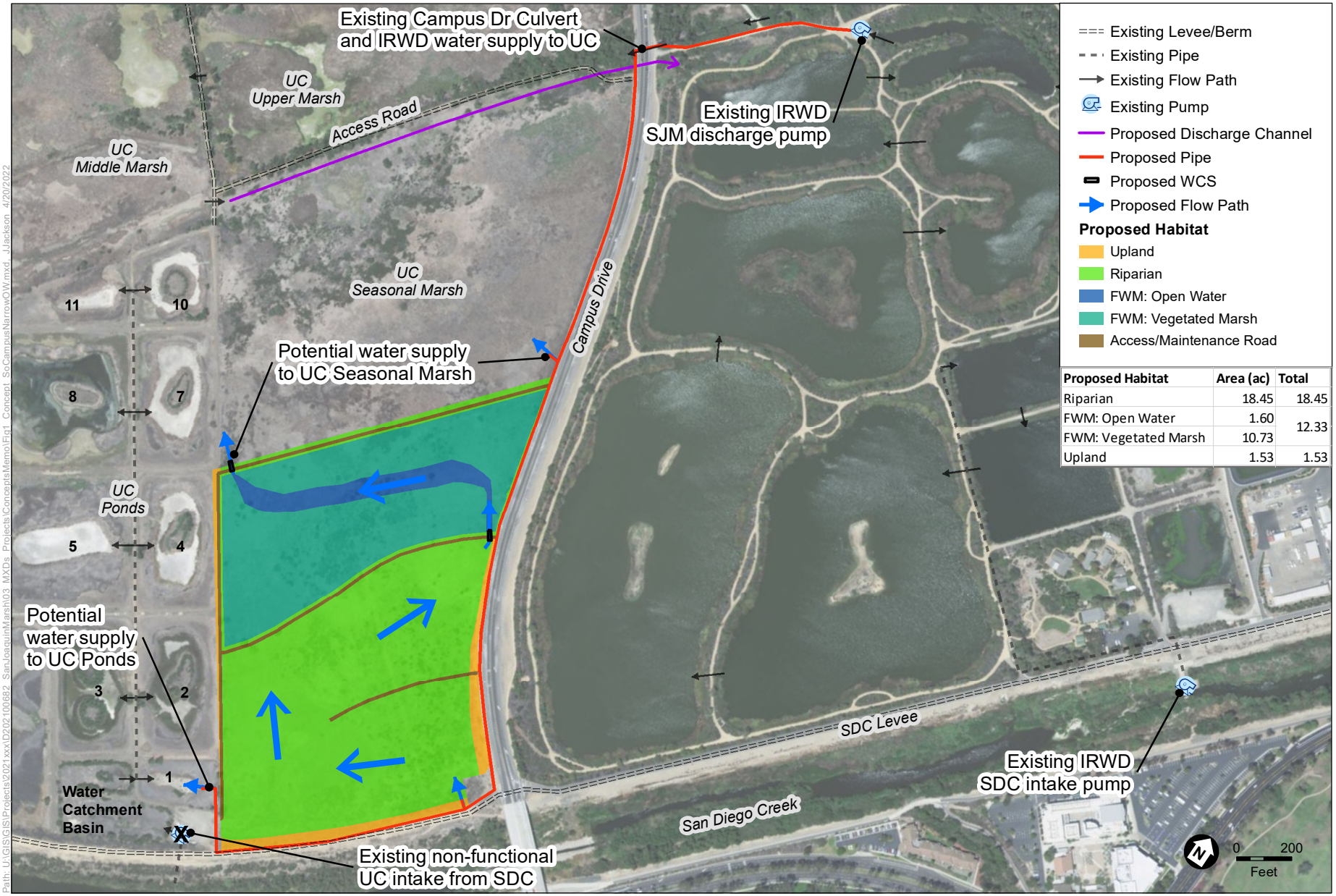
Riparian and Wetland Proposed Mitigation

Habitat	Acres	Credit Ratio	Mitigation Credit (Acres)
Woody Riparian 3.0 acres, on-site mitigation	3.0	2:1	6.0
Woody Riparian 3.2 acres, off-site mitigation	3.2	3:1	9.6
Tule Marsh, off-site mitigation	5.33	2:1	10.66
Total	**11.53**		**26.26**

Long Term Management and Contingency Funding

All mitigation areas will require long-term management and contingency funding in perpetuity as required by the Resource Agencies.

Exhibit "D"
Conceptual Design for Syphon Reservoir Off-Site Riparian and Wetland Habitat Mitigation



Proposed Habitat	Area (ac)	Total
Riparian	18.45	18.45
FWM: Open Water	1.60	12.33
FWM: Vegetated Marsh	10.73	
Upland	1.53	1.53

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SOURCE: IRWD, ESA, NAIP

Note: FWM=Freshwater Marsh, SDC=San Diego Creek, WCS=Water Control Structure

San Joaquin Marsh Wetland Mitigation Concept Design and Feasibility Study . D202100682.00

Figure A1
IRWD San Joaquin Marsh Expansion and
UC San Joaquin Marsh Reserve Enhancement Concept
Narrow Open Water

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